Our Club Rates are: **$1.00** for two copies (to the same or different post-offices); and for THREE or more copies, 90 cents each.

THOMAS G. NEWMAN,
EDITOR.

Vol. XXVII. June 18, 1891. No. 25.

Editorial Buzzings.

Keep the honey from the light to prevent granulation.

Bees are now storing honey very rapidly nearly all over the Northern and some of the Southern States. The present indications are that a very large honey crop will be gathered. Fruit-bloom yielded well, and generously provided the necessary food for brood-rearing. Now the bees are numerous enough to gather an immense harvest.

A Warm and Moist atmosphere will provide the conditions for an immense crop of honey. This we have, and may confidently expect an unusual honey harvest—unless it is prevented very soon by some unforseen calamity. It now looks as though the lamentations of the Southern weather prophet were wasted and worthless.

Spraying Fruit Trees.—We have a new pamphlet on this subject by P. C. Lewis, of Catskill, N. Y. It will be sent free upon application. It is refreshing to see that in this book all the instructions are given correctly, such as the following on page 4: "This spraying should be done just after the falling of the blossoms of the apple or plum," etc. It has been difficult to educate on this matter, but we are "getting there" now.

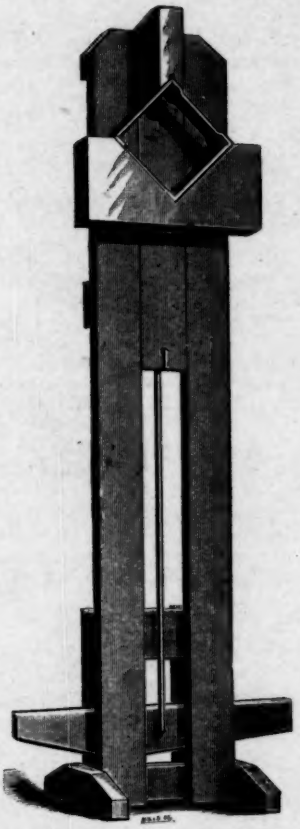
Since the above item was written, we have the news by telegraph that the Spraying Bill, after having passed the House of Representatives of the State of Illinois, lacked two votes in the Senate to become a law. Here is the telegraphic dispatch as published in the daily papers on June 13:

The House bill providing for the protection of bees from poison through the spraying or otherwise treating of fruit trees and fruit-bearing shrubs, vines, or plants with london purple, paris green, white arsenic, or other virulent poisons while the aforesaid trees, shrubs, vines, or plants are in bloom was read a third time, but failed to pass, receiving but 21 affirmative votes.

You Need an Apiary Register, and should keep it posted up, so as to be able to know all about any colony of bees in your yard at a moment's notice. It devotes two pages to every colony. You can get one large enough for 50 colonies for a dollar, bound in full leather and postage paid. Send for one before you forget it, and put it to a good use. Let it contain all that you will want to know about your bees—including a cash account. We will send you one large enough for 100 colonies for $1.25; or for 200 colonies for $1.50. *Order one now.*

The Nebraska State Fair will be held at Lincoln from Sept. 4 to 11, 1891. Mr. E. Whitcomb, of Friend, Neb., is the Superintendent. Apiarian premiums amount to $237.50.

Beeson's Section-Press is the latest arrival for our Museum. A good idea can be obtained of it from the engraving. It is very simple, easily operated, and is practically automatic. Sections can be put together with marvelous rapidity. As they can be made and sold for the small price of two



dollars each, it will not pay for any one to do without such a needful implement.

It is made of poplar lumber, ⅞x2⅜, 39 inches high. The frame is nailed together with six-penny wire nails.

The operator sits in a chair, with the press on the floor and between his knees, with both feet on the treadle. A pressure with the left foot raises the slide-bar and opens the press, thus leaving both hands free to fold the section and place it in the notch-block, when a downward motion of the right foot closes the press and brings the dovetails firmly together. The name of the ingenious inventor is A. Beeson (very significant), and he lives at Loveland, Colo.

What Will the Harvest be? is the general inquiry. The present prospect is indicated by many letters we have received, but the two following, are fair samples of them all:

The honey-flow continues, and I have never before seen bees carry in honey so rapidly, day after day. The white clover bloom will not be out in full before June 20; then our pastures and fields will be carpeted with these fragrant white flowers.—G. L. TINKER, New Philadelphia, Ohio.

My bees wintered on the summer stands, and are now booming. I had 12 colonies, but lost one in the Winter, and had 2 swarms in May. White clover is very plenty here, and linden promises better than at any time in 15 years.—D. A. MERILATT, Elmira, Ohio.

Warm Weather has come, and we think that it will continue awhile. Hard labor is now the lot of the apiarist. Bees need attention, and must have it now. This is the time of harvest. Sweetly speed its coming.

The State Grant of $500 to the Illinois State Bee-Keepers' Association passed both houses of the Legislature.

When Writing a letter be sure to sign it. Too often we get a letter with the name of the post-office, but no County or State. One such came recently, and we looked into the Postal Guide and found there were places by that name in 13 States. That order for goods will have to wait until another letter comes to give the proper address. Be sure to stamp your letter, or it may go to the dead letter office.

☞ The sewing machine I got of you still gives excellent satisfaction—W. J. PATTERSON, Sullivan, Ills.

Cultivation of Buckwheat.

Mr. Ernest Heald, Grinnell, Iowa, asks us to publish, in the BEE JOURNAL, an article on the sowing and harvesting of buckwheat, which he desires to obtain for bee-pasturage. In reply, we print the following from an exchange, which gives full particulars about its planting, care and marketing:

The grain is one of the best for feeding all animals, but pigs especially; the bran or refuse after grinding is better food than any other, and while the straw is not adapted for feeding, it is, when used as other straw, as free from objection in any way as other straws are.

SOWING.

This crop may be grown in the shortest season. It may be sown from June to July. The 12th of the latter month is the favored time where the grain is grown for making flour for sale, and where its quality is held to be superior to that produced in any other locality.

The best soil is a stony gravel. A considerable quantity of limestone in the soil seems favorably to affect the quality of the grain for flour. But in all cases I have given it as good care as the corn or oat crop.

I have cut the clover late in June, turned the sod under after a few showers have started a new growth, and sowed buckwheat in July, seeding with clover and timothy; have taken a crop yielding $40 or $50 per acre, and the next year have cut hay.

The preparation of the land and the sowing of the seed are too commonly thought to be immaterial, but this is a great mistake. Good plowing and harrowing and covering in the seed are essential to a good yield.

As the early Fall frosts are most to be avoided, a quick start and rapid growth are necessary to this end, and will mature the crop before any danger need be apprehended.

As the grain contains considerable lime, phosphoric acid and sulphur, 9½, 6 and 2¾ pounds in 1,000 pounds of fresh substance, superphosphate of lime, which contains all these, is the best fertilizer, and has a far better result than yard manure, which tends to luxuriant growth and stalk and foliage rather than to grain, and delays the ripening of the seed.

Thin sowing—not more than a peck of seed to the acre—tends to the growth of side branches which bear a profusion of bloom, and largely increases the yield. Thick sowing, on the other hand, forces a tall single stem, with less bloom and seed.

It is a popular belief that the bees detract from the yield of the crop. I have never found it so, but have been confirmed in the belief that the bees are really beneficial in securing the most complete fertilization of the blossoms, with a corresponding increase of grain, and while neighbors have gathered from my work a plentiful yield of honey, this has never been begrudged them from "dog-in-the-manger" objections.

HARVESTING.

The harvesting of the crop requires special care. Buckwheat cannot be stored in a barn. The succulent nature

BUCKWHEAT BLOSSOM.

of the plant prohibits this, for it tends to rapid fermentation and heating, and seriously injures the quality of the grain by decomposing the starch in it. The flour is heavy, and does not rise when made from grain which has been suffered to heat, either while in the straw or the granary.

The crop is cut at the time when the grain is mostly ripe. Some of it will yet be green, and some bloom on the stalks will remain as long as the plant stands. Hence, when frost may be expected, the crop should be cut.

Much of the green seeds will ripen in the swath and the gavel. A gavel is a small sheaf not tied up, and this is necessary to the curing of the straw. A cradle, or a reaper which drops in an even swath, is used for the cutting. The grain lies several days in this way if the weather is fine, and is then raked up in

small bundles, which are set up in a loose conical form, to admit air through them.

When the grain is dry, it is threshed at once; if by machine, the spiked concave is removed, and a smooth one is used in place of it, to prevent breaking the grain. For the same reason, the feeder should crowd the grain to the full capacity of the machine. The pedicels of the grain are very thin and weak, and are easily broken in threshing, and especially in hauling to the thresher. Hence, blankets or sheets should be spread on the rack to catch the loosened grains.

When threshed, the grain must be cleaned at once, and placed on an airy floor to dry, in a thin layer. Shoveling over to prevent heating is necessary. The grain should be quite dry before it is put in bins, and large bins are not desirable.

The grinding is best done on a dry, windy day, when the very absorbent grain will not gather moisture; and when the grain is to be sold, it should be floured as early in the season as possible.

KINDS OF GRAIN.

There are four kinds of this grain in use—the Merino buckwheat or Indian wheat, of northern New England, which is a prolific, early maturing, but poor flouring kind; the black and grey, or silver-hull, and the now popular and valuable Japanese variety, which has a large grain, and makes excellent flour, and is the most productive of all. The silver-grey, I think, makes the lightest flour, and the best for cakes, and it is a good yielder.

In England, the weather for a part of May was very unseasonable and severe. In North America we had the same experience—the northern hemisphere of the world seemed to have struck a bad spot in the universe. The *British Bee Journal* for May 21 contains the following description of the weather for the middle of the month of May:

Yet another "experience," such as surely none but dwellers in Britain ever go through. After calculating on a week or two, at least, of settled weather—in fact, after enjoying several successive days of real Summer warmth—a change for the worse occurred on the 15th, simply marvellous in its completeness. Reports from various parts of the country show that the astonishing and unlooked-for disturbance in the weather conditions on that day extended over the whole of the kingdom, some parts, of course, feeling it in increased severity, but everywhere strong winds and squalls of hail and snow have been more or less severely felt.

In London the temperature did not exceed 47° all day, which, with the exception of one day in May, 1869, and May 18, 1872, is the lowest day's temperature during the latter half of May for over forty years. Few counties escaped damage to fruit-bloom through the fierce hail storms which poured down on the tender leaves and bloom with such tremendous force.

Incredible though it seems, ice an inch thick is reported on ponds in northeast Lancashire on the morning of the 17th. It is fortunate that many varieties of fruit are so late in blooming this year as to escape serious damage, but a considerable amount of mischief has no doubt been done in some parts.

Here in Kent, however, the storm was less furious than elsewhere, while the copious rains must have done an incalculable amount of good everywhere, and it would appear as if the worst had come and gone, for to-day (May 19) the weather is bright and warm, so we may now hope for that most delightful of all Spring conditions when vegetation seems to make such progress in the moist, warm soil, that we can almost see it grow.

Sour Honey.—C. T. Bowen, of Lonella, Mo., enquires: "Is soured comb-honey injurious to bees?" We suppose he means if fed to them. We answer, No, if given to them in the Spring or Summer, when they can fly and void their feces. If they do not need it for food, they will work it over and sweeten it, if it is scratched, and allowed to drip, at a time when they are not too busy in gathering honey from the fields.

The Honey-Bee: Its Natural History, Anatomy, and Physiology. By T. W. Cowan, editor of the *British Bee Journal*, illustrated with 72 figures and 136 illustrations. $1.00. For sale at this office.

Queries and Replies.

The Use of Honey-Boards.

QUERY 771.—1. Will bees store as much honey in sections, over a honey-board 5/16 of an inch thick, with four openings, each one inch wide, crosswise of frames, as if placed over the frames without a honey-board? If less, how much? 2. Will honey-boards prevent the storage of pollen in sections?—S.

1. I think not. 2. No.—J. M. HAMBAUGH.

1. No. 2. They will not wholly prevent it.—J. P. H. BROWN.

1. I think so. 2. They do almost entirely with me.—R. L. TAYLOR.

1. Yes. 2. All honey-boards tend to prevent the storing of pollen in the super.—JAMES HEDDON.

1. The opening would be ample, and bees will store just as much honey over it as any other kind.—C. H. DIBBERN.

1. I think so. I could never see that a honey-board lessened the surplus. 2. No; but they tend to, I think.—A. J. COOK.

1. No; but it is hard to answer definitely how much less. 2. No; but probably there will not be so much as if the sections were directly above the brood.—EUGENE SECOR.

1. This is one of those theoretical questions to which an answer can only be guessed at. I think, however, they will gather less; but how much less I cannot even guess. 2. Not in my apiary.—J. E. POND.

1. There would be little if any difference, provided the bees could be induced to start promptly. 2. Whatever removes the sections from the brood will diminish the amount of pollen stored in the surplus apartment.—M. MAHIN.

1. It depends on the start the bees get in the early part of the season. Once started in the supers, they seem to store honey as rapidly through openings such as you mention as they do when no obstruction at all is in the way. But I would not use honey-boards on my hives if they cost me nothing. If your hives and cases are properly made, and properly adjusted, you do not need a honey-board. When taking honey with the extractor, I use zinc queen-excluders to keep the queen out of the surplus cases. But I have thrown away all my honey-boards. 2. Bees instinctively store pollen near the brood. Out of 1,500 one-pound sections last year, not 10 of them contained a few cells of pollen. You may judge from this that honey-boards are not necessary.—G. W. DEMAREE.

1. I do not like your kind of honey-board, yet I do not think it will make any difference. 2. A good wood-zinc honey-board, that will prevent any queen from going through, is a great help in that direction.—H. D. CUTTING.

1. I doubt if there is any appreciable difference. 2. I do not know; but I think they have a tendency that way. Still, I do not remember that I was ever troubled by pollen when using wide frames, without honey-boards.—C. C. MILLER.

1. What do you want such a honey-board as that for? It is going back to the days of our fathers. A queen-excluding honey-board is far preferable in every way, and does not diminish the yield of honey one particle, that I can see.—G. M. DOOLITTLE.

1. This is the old honey-board of Father Langstroth. I do not think it lessens the amount of honey stored in supers where used. 2. Queen-excluders do limit the storage of pollen in sections, and when rightly managed entirely prevent it.—G. L. TINKER.

1. I do not know. 2. I have put on sections without a honey-board, and again used a break-joint one, and in neither case have I been troubled with pollen in them. I should infer that the season and locality had more to do with it than the honey-boards.—MRS. L. HARRISON.

1. They will not store as much if the crop is short, as they sometimes hesitate a long while before placing honey so remote from the brood. As to saying how much less, and saying truly, it is more than we can do. 2. Yes, to a certain extent, and for the same reason.—DADANT & SON.

1. The difference would be very little, if any. 2. Only partially; but the season and conditions have more to do with it than the honey-boards.—THE EDITOR.

Topics of Interest.

Queen-Excluding Honey-Boards, Etc.

G. M. DOOLITTLE.

Allow me, Mr. Editor, to say a few more words relative to Query 767. By the replies to that query I see that some think that not as much honey will be stored above a queen-excluder as there would be if no such honey-board was used. I have very carefully tested this matter, for both comb and extracted-honey, and while I can see no difference in the least in regard to comb-honey, I think that I do see a difference as regards extracted-honey, the same being in favor of the excluders—not against them, as some would have it.

Without the excluders, the queen is bound to spread her brood to her utmost capacity, filling not only the lower story, but much of the comb in the upper story as well. This having brood in the combs you wish to extract from is a great disadvantage in two ways, the first of which is, that you have to handle more combs for the same amount of honey, turn the extractor more carefully so that the unsealed brood may not be thrown out with the honey (thus making a sickish looking mess of the product before it is strained), as well as endangering the life and limb of the queen in getting the bees off the combs; this latter being quite a serious matter, according to my experience.

Then, again, the bee-escape boards are of no use in freeing the combs of bees where the queen is in the upper story, for the bees will not go below and leave her, no matter how good the escape is. Also, the queen will lay the given number of eggs which nature has prepared her to lay, much sooner than she otherwise would, so that the queen arrives at old age, and must be superseded much oftener than is necessary; and all for what? This brings us to the second disadvantage (which the reader probably has already divined), which is that nine times out of ten this brood is only reared at our loss.

Where the queen has access to the whole amount of room given, she increases her egg-laying on the arrival of the honey harvest until she often has brood in every frame in the hive used. This brood requires much of the honey brought in from the field to rear it, and, as I said before, nine times out of ten arrives on the stage of action as mature bees, just in time to become consumers instead of producers, thus taking a large part of our honey crop, not only in the brood stage, but in the adult as well.

How often have I seen hives black with bees during the month of August, when there was no honey in the fields to gather by these supernumerary bees, which are hanging on the outside, in perfect idleness day after day. Far better that they had not been reared, for they have not added a single ounce to our crop of honey, but, on the contrary, have consumed pounds of what we might have had.

Now, the queen-excluders give us the privilege of determining just how much brood may be reared after the harvest of honey commences, and the wisest apiarist will place the amount at the point which will allow him bees enough to secure all subsequent crops for that year; for, as a rule, none of the eggs laid by the queen after a honey harvest commences, will be of any direct use in securing honey from the bloom of the kind of flowers which are yielding honey at that time, for it takes 37 days from the time the egg is laid until the bee goes into the fields as a laborer, where a colony is in a normal condition; while no flora, here at the North, with which I am acquainted, gives a continuous yield of honey for that length of time. Inasmuch as the perforated zinc allows us to adapt the number of laborers to the capacity of our field, I consider it one of the greatest inventions of the age; especially so, as it in no way hinders the work in the surplus apartment, no matter whether we are working for comb or extracted-honey.

WHY BEES CLUSTER.

On page 680 I see that Prof. Cook "supposed it settled" that bees always have a home selected when they swarm, and cluster so that the queen may rest her wings, which are unused to flying. No, no, Professor; if such were the fact, why do not the bees go at once to their home, instead of going about the country for days before entering that home, as they are often known to do?

While I fully agree with you that bees "sometimes" have a home picked out before they leave the hive, yet I "guess" you are wrong in supposing that they do always; for I believe that more swarms do not *thus* have a home selected than do, and I will proceed to give the reasons why I believe my guess to be nearer right than yours: In the first place, I have known of very many

swarms which have settled "for the queen to rest her wings," and before the one intending to hive them had all in readiness, they "went off"—not to their home which they had selected, but from half a mile to two miles, where they clustered again; not to allow the queen to rest her wings, but for the swarm to send out scouts in this new locality to see if a home could not be found—and in one instance the proof is pretty conclusive that this moving was kept up for a week.

Another thing, which I consider still better proof, is the fact, as I believe it to be, that when bees have a home selected before they swarm, all of the bees go to that home after the swarm starts from the limb—when the queen has become rested, according to the Professor—so that no bees are left hanging about the limb afterward, as is the case where no home is selected, and scouts are sent out to find one.

Who has not noticed from six to fifty bees around a limb on which a swarm has clustered for an hour or more, and then been hived, flying about and alighting on the same for from one to three days afterward, apparently homeless wanderers? These, I claim, are the scouts which have returned to find the swarm gone. I wish to thank the Professor for giving me credit for general correctness along the bee line, the same being more than I deserve; but on this point I am not willing to take a back seat yet, as he will see by the above.

Borodino, N. Y.

How to Make Conventions Successful.

P. BALDWIN.

There are many things which have to be put together in making up an association like ours, in order to have it a living and growing body, that, if nurtured properly, must develop into a full-grown organization that could be beneficial to a large number of the bee-keepers of our State.

I shall not take time, nor space, to speak of all the things that are necessary for such development, but will mention a few points which seem to me to be the most important. God's word says, "How can two walk together except they be agreed," and therefore I think that one of the most important elements in building up and perpetuating an organization like this is harmony and good feeling, one toward another. Let each try to please and benefit others, putting self and self-interest out of the way.

Another way of sustaining and keeping alive our association, is by the discussion of live, interesting and practical questions in bee-culture; not so much for the benefit of the "old heads," as for those who are learning in the pursuit, always remembering that "It is more blessed to give than to receive." What I mean by practical questions are those which relate to every-day experience in the apiary, which the novice can go home and apply for his own profit, thereby helping him in his chosen pursuit, and not those points that are only gained by long study and experiments.

In keeping up our association, I think it advisable and practical to advertise it as extensively as possible through the papers, periodicals, and with cards and letters, thereby gaining a good attendance, which is always a means of enthusiasm and encouragement; and in order to do this it is necessary to have a fair fund in the treasury and live, energetic officers.

I would like to speak of one or two things which are practiced in our association, which has a tendency to destroy its usefulness, and to keep many from attending its gatherings, and that is, that members belonging to it make the meetings a time and place to vend their wares and fixtures, thus occupying the time which might be more profitably employed in the discussion of some vital question that would be elevating to all concerned.

Do not understand me to claim that these things ought not to be exhibited at such places, but when the minds of those who ought to be the instructors and leaders of the association, are so much employed in disposing of their wares, and working for personal aims, instead of for the good of all, it is my opinion that the association with such an ugly sore on its body, has only to have a little time given it when its life will be utterly eaten away, and it will die an untimely death.

There is also another trouble, connected with the perpetuation of our association, and that is the "rule or ruin" policy that we sometimes meet with in our fellowship with mankind, especially in organized bodies. It brings to the surface in human nature that element of character that is narrow and selfish, instead of that broad and ennobling trait

that seeks, and loves to labor for, the welfare of others.

There is another thought that presents itself to me that might be of some help in building and keeping alive our association, and that is to get the statistics of as many of the bee-keepers of the State as possible, to publish in the reports of its meetings. This might have a tendency to draw them out to our gatherings, and, being represented in the transactions of the association, they would feel somewhat of a responsibility for its welfare.—*Read at the Missouri Convention.*

Independence, Mo.

Construction and Use of Queen-Excluders.

DR. G. L. TINKER.

It appears from an article on page 737, that Mr. James Heddon is very much concerned about the ideas of Dr. Tinker on the wood-zinc queen-excluder, and its proper construction.

I believe this is not the first time that we have been given to understand that the experience of Mr. Heddon is more valuable and trustworthy than that of other men in our ranks. My many years of careful experience in the use of the queen-excluder, on probably as extensive a scale as Mr. Heddon has practiced, count for nothing in his estimation, and so he proposes to do away with Dr. Tinker's idea that the queen-excluder should be so constructed as to provide ample passageway and ventilation for supers!

How much of this is grounded in reliable experiment, and how much in sheer opposition, will appear to the reader from his reckless statement that "two rows of queen-excluding holes, the length of the Langstroth hive, between the brood and surplus apartments, are enough for the largest colony of bees in the busiest season of the year."

Mr. Heddon should, and probably does, know that two rows of queen-excluding holes in the center of a hive packed with bees, at this time of the year, will give neither proper ventilation nor ample passageway; and, furthermore, the bee-keeper who would trust such an arrangement in getting a crop of honey does not live at Dowagiac, Mich., nor at any other place.

But Mr. Heddon gives us to understand that his two rows of holes "facilitate and encourage bees to enter and rapidly carry on work in the surplus apartment." That kind of assertion (for I believe it to be simply that, and nothing more) may serve his purpose with a few, in doing away with my idea of the necessary requisites of a practical queen-excluder, but I believe the many will reject his assertion, as I do, as being wholly unworthy of confidence.

Again, there is a "serious objection," says Mr. Heddon, to the use of two-rowed zinc, as advised by me, as it will cause "brace-combs and glue," owing to the one-half inch spaces between the slats. Yet he has insisted, almost dogmatically, in the late discussion on burr-combs, that top-bars ⅞ of an inch wide, that require one-half inch spacing, are attended with less burr-combs than any other width of top-bar!

Now, Mr. Heddon assumed that he knew all about brace-combs, and he, no doubt, expected his dictatorial assertions to wind up the discussion, like the springing of a steel trap. But they did not. On the contrary, the outcome of that discussion showed that of those who wrote on the subject, not one knew so little about brace and burr-combs, and how to prevent them, as our over-solicitous friend, James Heddon!

There was only one remedy—his break-joint honey-board; yet the discussion showed that there were a number of remedies, more or less effectual, while his break-joint affair was no remedy at all. Still, he is anxious that the break-joint principle "be preserved," though it was stated in a late issue of *Gleanings*, that there was no longer a demand for his slatted honey-board. It has seen its day, and so this pet and particular hobby of his is about to pass out of use. 'Tis sad!

As to my wood-zinc queen-excluder, made up with two-rowed zinc, I will say this, that when properly used it is rare that burr-combs, in any considerable quantity, are ever attached to it; and as for propolis, it is no worse upon two-rowed than upon one-rowed zinc.

CLEANING OFF THE PROPOLIS.

They are best cleaned by laying them in the hot sunshine until the propolis is soft; then, with a narrow piece of steel, drawn to a thin edge, and made slightly dull, the propolis is easily removed. There may be a difference in localities about the amount of propolis used, but in this locality, where the round end perforations are used (which are far less liable to be clogged up with propolis), they may be used at least two whole seasons, from June to October, without cleaning. When laid away for the

Winter, they should be kept in a dry upper room, free from dust.

As to burr-combs, when bee-keepers shall learn fully how to use the excluder zinc in producing comb-honey, there will no longer be complaint about this greatest of annoyances in handling hives.

Hence, if I shall suggest that Mr. Heddon knows little or nothing about the proper use of the queen-excluder, or of its proper construction, I shall state a fact that even our doubtful brother will be compelled to acknowledge in due time.

New Philadelphia, Ohio.

Fixed or Hanging Frames.

C. W. DAYTON.

Bee-keepers already having hanging frames will do well to stick to them until this closed-end-fixed-distance storm goes by.

I cannot distinguish an advantage of a fixed-distance frame over the movable one, but I can easily see why the unfixed one may be more satisfactory than the fixed one.

There is apt to be brace-combs built between the combs, when they are spaced much more or less than the right distance apart. This right distance is not mathematically exact, and any eye—even not a very mechanical eye—should be able to tell at a glance when the frames are spaced right; this is one of the many minor points connected with bee-keeping that should be learned—to space the frames about right, without the aid of spacers.

It might be well for some to get an empty hive and frames and practice spacing. Any sort of bee-keeper should be able to distinguish the bee-space at a glance, just as readily as the compositor will tell, without measuring, what piece of metal is just thick enough to fill up a line of type. For those who wish to learn the bee-business by going "across lots," spacers are a necessity, but sooner or later they will find out that the "longest way around is often the shortest way through."

If it is to be rules and measures to go by, where is the skill to come in? Every one ought to learn to distinguish the bee-space, because there are so many instances where the space appears. One is led to wonder why the bees have not asked for spacers to aid them in getting the distances to suit them.

When we begin to apply spacers, or any other contrivance to fix the frames, we immediately begin to spoil the frames or hives for rapid and easy manipulation, and these contrivances are only suggested to save the time and labor required to learn to space by eye.

Clinton, Wis.

Bee-Culture in Southern Colorado.

F. O. BLAIR.

This subject can be easily disposed of, partly because there are so few bees kept, but chiefly because I know so little about the matter. I am located in Las Animas county, in the southeastern part of the State, and know absolutely nothing about bees or bee-culture outside of the county, and not much of what is in it.

I have learned that several persons living in the Sunflower bottom, from 5 to 15 miles down the river from Trinidad, have a few colonies each, but only a few. In Trinidad, where I live, only one man, Mr. J. P. M. Butler, has any bees at all besides myself, and he has but 5 colonies. When I came here, three years ago, four other persons had a few colonies each, from one to half a dozen; but giving them little or no care, they have all disappeared by death or removal.

"Foul-brood" appeared in the hives of the man who had the largest number in the Fall of 1888, or the Spring of 1889, and destroyed them all. He sold one colony to be taken to New Mexico, but it died a few months after it reached its destination. After the bees were all dead I persuaded him to burn the hives and contents to prevent the spread of the disease further. No foul-brood, so far as I am aware, has appeared the past season. I should be very glad to learn, if possible, how his colonies became infected with foul-brood when no other apiary within a hundred miles, so far as known, was troubled with it.

When I came to Trinidad and found I was likely to remain, I began to look about to find where I could obtain a colony or two of bees, for I had been accustomed to have them for many years, and felt lonely without them. I sadly missed the ecstatic thrill of a sting now and then; and the delight and inspiration of a honey-bee's hum is to me a perpetual joy. Besides, I needed a supply of honey to sweeten my temper—bee-keepers, on account of nature's

sweetness in which they constantly revel, are always sunny tempered—so I began inquiries for bees.

I found a few, but the price demanded was $12 a colony. I could do better than that, and in July, 1888, I received a nucleus from a bee-keeping friend in Marissa, Ills., containing a tested queen, the daughter of an imported Italian. These have multiplied until I now have 18 colonies—fine strong ones, with one exception. I sold one the other day at half what I was to be charged, being disposed to give my neighbor a chance, too.

I use the simplicity hive, with some modifications, being better pleased with it than with any other of a number I have tried. I have made no effort to obtain honey, being anxious to increase the number of my colonies.

The honey-flow was very abundant last season during the month of July and the first half of August, two very seasonable showers having brought forward the honey-producing plants unusually. The labors of the queens were very materially interfered with by having the brood-combs filled with honey. I did not expect to take any surplus, but the busy little pets persisted in crowding it in till I found them so urgent about the matter that I finally yielded, not having the heart to wait longer, and made arrangements for them to store 100 to 200 pounds for me.

I have not lived in Trinidad long enough to speak very intelligently or positively about it as a honey-producing region. Last season was a favorable one. The river bottom is narrow in the vicinity of the city, and market gardens occupy a large share of the tillable land. Very little alfalfa is raised within the range of a bee's flight, and that little is cut so early that it affords no bee-forage to amount to anything.

There has not, as yet, been enterprise enough to plant orchards to any considerable extent, so that the bees gather very little of their luscious sweetness from the fruit blossoms. The wild flowers are their main dependence. Down the river the bottom lands are broader, alfalfa is raised much more extensively, and honey gatherers would undoubtedly prosper; but as yet there are few of them.

The leading honey-producing plants growing in the vicinity of Trinidad, so far as I have been able to observe, are the *cleome integrifolia*, or Rocky Mountain bee-plant, a species of the mountain mint, and, toward the close of the Summer, a kind of dwarf sunflower. The honey gathered from the first two is light colored and pleasant to the taste; while that from the sunflower has a yellowish tint, and a peculiar and less agreeable flavor. I shall endeavor hereafter to get my share of nectar stored early in the season—for that gathered from the mint is especially delicious—and then permit the bees to retain the sunflower honey for their own use.

In some respects the region about Trinidad is more favorable for bee-culture than any other locality in which I have lived. There is not a bee-moth in the country, and an unoccupied hive, filled with comb, can stand through the Summer unmolested.

In Illinois, where I kept bees for many years, eternal vigilance was the price paid for freedom from that detestable pest. There is now, I think, no foul-brood in the region, and the native black bee is not found there; all are Italians. When queens are reared there is no cause for fear that they will not be purely mated.

If proper care be taken in the future, the disadvantages arising from these causes may be avoided, and the colonies of bees be kept healthy; the ravages of the progeny of the bee-moth be prevented, and a race of yellow beauties only be reared to gather the nectar from the mountain sides.

It would seem at first thought that the Mexicans, who form the larger share of the population of Las Animas county, would be the very ones to keep bees. Many of them seem to have been born tired, at least they exhibit no great amount of energy and activity. It might well be supposed that such persons would delight to have thousands of energetic workers laboring for them, that would work for nothing and board themselves; but never a bee does a Mexican keep about Trinidad, as far as I have seen or heard. It would probably upset all their calculations, and take their very breath away to have so much vigor displayed at their doors.

It is not likely that bee-culture can ever be made as great a success about Trinidad as in some other parts of the State, but by proper care and attention it undoubtedly can be made profitable.—*Read at the Colorado Convention.*

Trinidad, Colo.

Clubs of 5 New Subscriptions for $4.00, to any addresses. Ten for $7.50.

Foul-Brood Spread by Comb-Foundation.

S. CORNEIL.

Now, that some of the most prominent manufacturers of foundation, as well as several editors of the bee-periodicals have expressed their views on the question of infection in comb-foundation, I ask for space for a partial reply, and to give some additional facts bearing on the question.

Mr. Dadant is in error when he says (AMERICAN BEE JOURNAL, page 470) that the number of bee-keepers I alluded to as having raised the question of infection by means of foundation is only four. I wanted to show that the subject is one on which bee-keepers are not agreed, and I quoted four on one side of the question, and four on the other, which was quite sufficient for my purpose.

Since it is evident that Mr. Dadant has missed, or forgotten, these items in the bee-periodicals published in English, the fact that he does not recollect noticing any such items in the periodicals published in France, Germany, Italy, or Switzerland is not good proof that the bee-keepers in these countries have not raised the question. I am sure that bee-keepers "in Europe and America" will not soon forget their deep obligation to Mr. Dadant for the information that, "with Mr. Corneil England is Europe, and the United States America."

Mr. Dadant argues that because Pasteur taught that a temperature of 140° kills the "seeds of disease" in wine, therefore, 150° will kill the spores of foul-brood in wax. I do not so understand Pasteur. Trouessart, in his work on "Microbes, Ferments and Moulds," quotes from Pasteur's book, "Etudes les sur vins," as follows: "The source of the diseases which affect wine consists in the presence of parasitic microscopic plants, which are found in wine under conditions favorable to their development, and which change its nature, either by the withdrawal of what they take for their own nutriment, or, still more, by the formation of fresh products which are due to the multiplication of these parasites in the wine."

From this it is plain that Pasteur does not teach that the spores or "seeds of disease" are killed by a heat of 140°, as alleged by Mr. Dadant, but that it is the growing microscopic plants which are destroyed by this temperature. The spores of these plants or ferments are air germs, introduced before the wine is put into the casks; like noxious seeds in the soil, they are harmless till they germinate and multiply, which they do by budding and bipartition, no spores being formed while the nutriment in the wine lasts.

Mr. Dadant is not the first who has failed to discriminate between spores and microscopic plants in active growth. Regarding such mistakes, Tyndal writes: "The failure to distinguish between these stubborn germs and the soft and sensitive organisms which spring from them, has been a source of error in writings on biogenesis."

In my article, on page 447, I stated that so far as I then knew the lowest temperature at which the spores of bacillus alvei, when in their most resistant condition, are invariably killed had not been determined, nor has it been so far as I yet know; but I now find that good work has been done in this direction, of which I was not then aware. I am indebted to my friend Dr. P. Burrows, of this place, for calling my attention to Vol. XIII, Papers and Reports of the American Public Health Association. This volume contains the report of Dr. G. M. Sternberg, Chairman of the Committee on Disinfectants.

Under the directions of Dr. Sternberg, experiments were made in the biological laboratory of Johns Hopkins University, Baltimore, to test the effects of chemicals on the spores of several kinds of microbes, including the microbe of foul-brood. Dr. Sternberg himself made experiments to test the effects of heat as a germicide, and in two of his experiments he included the spores of bacillus alvei.

His first experiment showed that the spores of foul-brood were not killed by a 10 minutes' exposure to 176°, nor by an exposure of the same duration to 194°; but it showed that they were killed by an exposure for 10 minutes to 212°. The results of the second experiment showed that the spores of bacillus alvei were not killed by an exposure of 2 minutes to 212°, but that they were killed by an exposure of 4 minutes to that temperature.

Such experiments require costly appliances, a great deal of time, patience, skill, and good judgment. The particulars furnished in Dr. Sternberg's Report on Disinfectants, show that his experiments were conducted with the care and skill which beget confidence in the accuracy of the results obtained. Although these experiments were made in the interests of sanitary science, bee-keepers are under great

obligations to Dr. Sternberg for ascertaining the thermal death point of the spores of bacillus alvei, when exposed to moist heat. I believe Dr. Sternberg is entitled to the credit of priority in determining this point.

Dr. Sternberg says: "It will be understood that the experiments included in this report relate to *moist heat*, that is to say, the test organisms were in fluid cultures, and in a moist condition. The effects of *dry heat* (italics in both cases are mine) on desiccated organisms is quite another matter. This has been studied by Koch and Wolffhuegel, and their results have been given by Dr. Geo. H. Rohe, in his essay on 'Dry Heat,' in the report of the committee for 1885."

I took the liberty of addressing a letter to Prof. Rohe, explaining the question under discussion, and the ground I had taken, that spores in melted wax are in the position of spores exposed to dry heat, and asked him if he could favor me with a copy of his essay. He very kindly sent me the Report of the Committee on Disinfectants for 1885, containing his essay on "Dry Heat," accompanied by a letter from which I make the following extract:

"Comparing Dr. Sternberg's observations upon the thermal death point of micro-organisms (Public Health, XIII, page 97), I find the resistance of spores of bacillus alvei to be equal to that of B. anthracis and B. tuberculosis, two of our most resistant pathological microbes. Now, Koch and Wolffhuegel showed that a temperature of 248° to 262° F. failed in three hours to destroy the vitality of these organisms. Hence, it seems to me we may extend the same observation to B. alvei. In the absence of direct experiment, it seems to me that your point, *i. e.*, that the heat applied in melted wax is dry heat, is well taken, and I should take your contention as a valid one."

In another series of observations by Koch and Wolffhuegel, it was found that bacillus anthracis was killed by an exposure of 3 hours and 10 minutes to a temperature of 283°. As the result of further observations, they say: "Complete destruction of the spore-bearing organisms did not follow, unless the temperature of 282° had been reached."

Dr. Rohe closes his essay with the following paragraph: "Koch and Wolffhuegel (*Mittheilungen aus dem Kaiserlichen Gesundheitsamte*, page 231) submit the following conclusions, which seem to the writer to be fully justified by the results of their own and other observations here collected." Among the conclusions here referred to by Prof. Rohe, is the following: "Bacillus spores require, for their destruction in hot air, a temperature of 284° F. maintained for 3 hours."

Dr. Sternberg gives a table containing the thermal death point of 37 different micro-organisms, as regards moist heat. The time of exposure required was from 4 to 10 minutes. The lowest temperature required was 122°, and the highest 212°, only five of the organisms requiring the latter temperature for four minutes, and one of these five was bacillus alvei; showing, as Prof. Rohe says, that it is one of the most resistant pathogenic germs known.

From the foregoing I think it is now clear that Mr. Dadant, and others who contend that a temperature of from 140° to 212° is sufficient to sterilize wax, are mistaken. Whether an exposure to, say, 200° for 7 or 8 hours, as in Mr. Hunt's case, is equivalent to 284° for 3 hours, can be only a matter of conjecture in the absence of experiment.

What is required to make sterilization a certainty is a tank having a jacket to which steam, under pressure, can be supplied, the same as is done in packing houses for rendering lard. From all that seems to be known at present, wax kept at from 284° to 290° for 3 hours might be sent out without any qualms of conscience as to its being the means of spreading foul-brood.

I purposed replying to the contention that experience in using foundation proves that it does not spread the disease, and therefore it does not contain live germs of foul-brood, and to show that there is a cause for the partial immunity from the spreading of the disease in this way, which, up to the present, does not seem to have occurred to any of those who have taken issue with me on this subject, but I must not forget Voltaire's remark that the way to be tiresome is to say everything, so for the present I shall "break off."

Lindsay, Ont.

After putting Mr. Corneil's article in type, we sent a copy, in proof, of it to each of the persons who replied to his former article, and here are the criticisms: Mr. Dadant says:

In the foregoing article, after stating, regarding the report of the experiments made by Dr. G. L. Sternberg, that "the results of the second experiment showed

that the spores of bacillus alvei were not killed by an exposure of 2 minutes to 212°, but that they were killed by an exposure of 4 minutes to that temperature," the experiments having been conducted with *moist heat*, and quoting the conclusion of Koch and Wolffhuegel, that "bacillus spores require, for their destruction in hot air, a temperature of 284° F., maintained for 3 hours," Mr. Corneil adds:

"It is now clear that Mr. Dadant, and others, who contend that a temperature of 140° to 212° is sufficient to sterilize wax, are mistaken." And further: "From all that seems to be known at present, wax kept at from 284° to 290° for 3 hours, might be sent out *without any qualms of conscience* (italics are mine) as to its being the means of spreading foul-brood."

In answer, I will say that Mr. Corneil has made a great mistake in thinking that wax melted with water, as we do, is heated in *hot air*. During the melting, and long before the boiling of the water, we see the steam produced passing through the melted wax. Our object in melting wax with water, is to wet all particles of extraneous matter, to get rid of them. These particles, when soaked with water, are heavier than liquid wax, and even the smallest and lightest substances sink to the bottom.

Sometimes we find bits of paper, which, soaked with wax, are so transparent that it seems impossible to separate the two substances, yet when our cakes of wax are cold, we find the paper altogether clear of wax. Suppose that, instead of paper, we have a spore of foul-brood, will this spore remain dryer than the paper? Consequently, we are right when we hold that all the spores of foul-brood are killed by the temperature of boiling water, since we maintain this temperature in our boiler for more than 4 minutes.

Besides, although we have certainly worked wax from foul-broody combs by the thousand pounds, and as our bees, which have free access to our wax bins, and to the barrels in which we put the refuse of our meltings, have never been affected with foul-brood, can we not, without any qualms of conscience, continue to manufacture comb-foundation by the same methods that we have used so far?

In calling our attention to this prejudice, as it is entertained by some bee-keepers, Mr. Corneil has done a service to our community; for it seems that I have well demonstrated that foul-brood cannot be scattered by comb-foundation, as the beeswax is sufficiently heated.

CHAS. DADANT.

Mr. M. H. Hunt sends us the following in reply to Mr. Corneil:

All of my beeswax is now refined in a wooden tank, and the steam goes directly into it, which must raise the temperature to a very high point—so much so, that after shutting off the steam the wax will remain liquid all night. It is necessary to have the steam go directly into the wax to heat it above the boiling point. Water cannot be heated above the boiling point, unless it is confined. This great heat kept up through the day, and again remelting the wax to sheet, must, according to Mr. Corneil's own figuring, be all that is necessary to destroy the germs.

M. H. HUNT.

Mr. E. R. Root gives his views of the matter, and replies to Mr. Corneil in the following words:

Mr. Corneil is, I think, magnifying a mole hill into a mountain. All history of foundation making, and its use, is against his argument as above stated. Permit me to say that I have tried the experiment repeatedly, of putting foundation, made from diseased combs, into our hives, and I never noticed any disease that ought to have developed later, according to Mr. Corneil's argument. Has our Canadian friend tried the experiment himself?

In the next to the last paragraph he intimates that the wax should be kept at a temperature of 284° or 290° for *three hours*, before running into foundation. Does not Mr. Corneil know that this would very nearly ruin wax for foundation making? Experiments in our own factory have shown that we could not go much above the boiling point. If I am correct, Mr. Corneil's remedy, then, is beyond the reach of application.

Our friend makes a distinction between dry heat and moist heat for killing germs. I have no doubt he is right; but I somewhat question his grounds, that melted wax has only a *dry* heat effect upon any possible germs that may be present in it.

I do not say that this *is* so—I simply raise the question. If this is true, it will not disprove the figures which Mr. Corneil gives from the eminent scientists whom he quotes, nor will it prove that foundation may be the means of propagating foul-brood; because, if 211° is sufficient to sterilize wax at a *moist* heat, then we apprehend no danger.

Allow me to repeat, by way of emphasis, that all history of foundation is against Mr. Corneil's position.

ERNEST R. ROOT.

[On page 448, Mr. Corneil approvingly quoted this remark: "An exposure of 1½ hours to a temperature of 212° appeared to be equivalent to an exposure of 15 minutes at 228°"—just one-sixth of the time. The difference between 212° and 257°, the point at which spores are surely killed, is 45°. If that 1½ hours are reduced to one-sixth of that time by the increase of 15° in temperature, then 1½ hours at 212° equals 5 minutes at 257°. And Mr. Corneil affirms that "it has been ascertained that a long exposure to a lower temperature produced the same effect as an exposure to a higher temperature for a shorter time."

Dr. Sternberg shows that the death point in micro-organisms was from 122° to 212°, and that 5 out of 37 of the strongest of them required 4 minutes of moist heat to cause death, and one of that five was bacillus alvei (foul-brood microbes).

Now, instead of subjecting these microbes for 4 minutes to 212° in making comb-foundation, the wax is held at over 212° for 24 hours, as shown by Mr. Dadant's statement on page 470. Surely, this is more than sufficient to take the life out of even the strongest microbes; as they are for 360 times the length of time exposed to the temperature required to kill "one of the most resistant pathogenic germs known."

There is not, therefore, the slightest excuse for further agitation of the question, or for the suspicion that the use of comb-foundation, when properly made, can possibly aid in spreading the disease.—ED.]

Prospect for Fall Honey.

White clover is a failure here, on account of the drouth of preceeding years. Bees are now living on honey-dew and raspberry bloom. Basswood blooms about July 1, and lasts but a day or two. It now seems that a Fall flow of honey may be reasonably expected.—MRS. L. HARRISON, Peoria, Ills.

CONVENTION DIRECTORY.

Time and place of meeting.

1891.

Aug. 6.—Rock River, at Sterling, Ills.
J. M. Burtch, Sec., Morrison, Ills.

Sept. 3.—Susquehanna County, at So. Montrose, Pa.
H. M. Seeley, Sec., Harford, Pa.

☞ In order to have this table complete, Secretaries are requested to forward full particulars of the time and the place of each future meeting.—THE EDITOR.

North American Bee-Keepers' Association

PRESIDENT—P. H. Elwood....Starkville, N. Y.
SECRETARY—C. P. Dadant.....Hamilton, Ills.

National Bee-Keepers' Union.

PRESIDENT—James Heddon..Dowagiac, Mich.
SEC'Y AND MANAGER—T. G. Newman, Chicago.

Bee and Honey Gossip.

☞ Do not write anything for publication on the same sheet of paper with business matters, unless it can be torn apart without interfering with either part of the letter.

Prosperous Season in Nebraska.

Bees are doing finely, and from the present outlook, I predict a prosperous season. Fruit promises a full crop, and the late rains have done an immense amount of good for farmers, fruit-growers and bee-keepers.

G. M. WHITFORD.

Arlington, Nebr., June 8, 1891.

Plenty of Rain.

Bees have been booming on the fruit bloom. Several swarms have issued in this vicinity, and some colonies have stored honey in the sections. White clover began to bloom on the 2nd inst., but I have not seen a single bee upon it yet. The season has been dry until within the last few days, when we have had plenty of rain. I put 17 colonies in the cellar last Fall, and took out 7 this Spring, but now have only 4. The colonies that perished late in Winter lacked stores, but the 3 that died since being put on the summer stands, starved in the midst of plenty of granulated sugar.

JOSIAH DILLON.

Bangor, Iowa, June 4, 1891.

Giving Instruction in Bee-Culture.

East Tennessee is a superior place for bees. My bees commenced bringing in pollen Feb. 17, white clover in April; poplar, May 1; and there is a regular succession of flowers until about Nov. 1. I bought 6 colonies, and have taken 100 pounds of honey, and the season is not over yet. In connection with U. S. Grant University, located here, there is a school of technology, and there is talk of giving instruction in bee-culture. Please answer the following questions through the BEE JOURNAL: 1. How many schools in the United States are giving instruction in bee-culture? 2. Have any of them a well defined course of study? 3. Do classes graduate and receive diplomas? J. G. TETER.

Athens, Tenn., June 5, 1891.

[Will Prof. Cook please answer the above?—ED.]

Smoke from Passing Trains.

My bees are dying with what seems to be diarrhea. They wintered well, and were all right until ten days ago. Would smoke from a passing train injure them? They are located about 30 rods from the track. C. ABBOTT.

Wood River, Nebr.

[It all depends on the lay of the land, and whether the smoke usually beats down on the ground as the trains pass. Of this you can determine on the spot better than any one could at a distance. If the bee-hives are enveloped in the smoke, even occasionally, it would be quite detrimental. The soot would then injure both the color and flavor of the honey, more or less, according to the frequency of contact with the smoke, and the density thereof. It would be better to move them on general principles, rather than let them continue to die off.—ED.]

Refuse to Rear Queens.

We had extremely dry weather until the latter part of May, but the rains then changed our prospects for the better by starting the white clover, although it will be light at best. Caterpillars are denuding the basswood, but in some localities it has, so far, escaped the pests. Bees have bred up finely, and are swarming some, having worked largely on the dandelion, the stunted red and scattering white clover, and gathering pollen from the wild grape, which is quite pentiful. Bees wintered well on the summer stands, but queens have mysteriously disappeared, and the bees refuse to rear queens, although supplied with brood and larvæ, and there are many peculiarities manifested that I never noticed before. Our drouth is now of three years' duration, with some rain, but not enough to thoroughly moisten the earth, and the lakes are lower than ever known before.

S. D. HASKIN.

Waterville, Minn., June 5, 1891.

Dividing for Increase.

On May 21 I took brood and bees enough from my 5 colonies for 3 new ones. On June 2 I examined all of them again, and found larvæ less than 4 days old in the combs. When I divided I did not see any queen-cells on any of the combs. For the past week I have had drone and queen-excluders at the entrance of all the hives, which would have prevented the queen from coming out to mate with the drones. Should there have been a queen hatched since dividing? Why should there be larvæ in the combs of all only eleven days after dividing? LONE STAR.

Batavia, N. Y., June 3, 1891.

[The larvæ in the combs 11 days after dividing were undoubtedly from eggs laid by worker-bees in at least 3 of the divisions.—ED.]

Bees in First-Class Condition.

My first swarm issued on June 1, and another June 4. The 2 colonies casting the swarms were hybrids, and had been wintered in chaff hives. Last Fall I had 225 colonies, and have only 206 now. Bees are in first-class condition in this vicinity. G. G. BALDWIN.

Port Huron, Mich.

Black, Shiny Bees.

I am in the same perdicament as Messrs. Wilson, Craig and Peck (see page 737). I have 2 colonies affected—one slightly, the other badly. At any time of the day the bees may be seen tugging at the little black, shiny fellows, as though they wished to get rid of them. They are much shrunken in body, and this makes the head look

abnormally large. The first sign of the disease is the shrinking of the abdomen, and then the black, shiny appearance comes on gradually. The colony which is most affected is strong in numbers, and has a very prolific queen, but does not seem to make any headway in honey gathering. I would be glad to know what it is, and the remedy.

G. B. REPLOGLE.

Centerville, Iowa.

Transferring Bees from Box-Hives.

If I transfer my bees from box-hives to those having frames, at this time of the year, will it interfere with their swarming this season? A. F.

[Yes; but it is better to transfer bees early in the Spring, when the combs contain but little honey. If left until now, it would be as well or better not to molest them until after harvest; but if it is necesary, transferring can be done in the middle of the day at any time.—ED.]

Doolittle's Queen-Rearing.

I am very much pleased with "Doolittle's Scientific Queen-Rearing." Out of the first 36 cell-cups I tried, I secured 23 queens. It is the best plan of starting queen-cells that I have ever tried. I let a friend have my copy of the book, and want another one, as I wish to try having queens fertilized *a la* Doolittle. My hives are chock full of "bug juice" [so-called honey-dew]. What shall I do with it? It is still coming in, or I would extract. A. N. DRAPER.

Upper Alton, Ills., June 9, 1891.

[Do anything with it, except to dispose of it as honey.—ED.]

Packages for Extracted-Honey.

I am having correspondence from many bee-keepers, nearly all asking the following question: What are the best marketable packages of extracted-honey? I would advise bee-keepers to ship their extracted-honey to this market in good, tight kegs, in half barrels, or barrels. The majority of people who buy extracted-honey buy it in quantities, and do not want to pay for cans and crates, which add at least a cent a pound to the cost of the honey, as well as time, trouble, and extra freight charges to the shipper. I would also advise the bee-keepers to see that their small sections of comb-honey do not run over one pound each; it is better they should average 14 ounces than 18 ounces. From the numerous inquiries I thought that, had you space in the BEE JOURNAL, this would be the only means of bringing this valuable information to bee-keepers in time to have them profit by it.

J. A. LAMON.

Chicago, Ills., June 10, 1891.

Feeding Swarms, Etc.

1. If a cold, rainy spell of weather follows the hiving of a swarm of bees, do I need to feed them? 2. Does the ringing of bells, or throwing water or dirt among bees, while swarming, cause them to settle? 3. Should I put on the section-case as soon as a swarm is hived?

Manning, Iowa. M. L. BRANSON.

[1. If the cold, rainy spell lasts more more than two or three days, I would feed them. Early May swarms sometimes require to be fed to prevent starvation.

2. It is doubtful if the ringing of bells does any good in causing a swarm to cluster, but the throwing of water with a good fountain pump does.

3. If a queen-excluder is used the sections may be put on at once, otherwise wait at least three days.—G. L. TINKER.]

Cannot Gather Half of the Honey.

On April 11 I placed 50 colonies of bees on the summer stands, most of which were in fine condition. Four colonies were light in bees, but they have good queens, and are building up very rapidly. I lost but one colony, and that one starved in the cellar. My bees have a very large field force, and the combs are well covered with young bees, and on an average six combs of solid, sealed brood, apparently nearly ready to hatch when I examined the brood-chambers last week. We have had a succession of honey-dews during the past week or two, on the burr oaks and box-elders, and the majority of my hives appear to be chock full of honey and brood, and as soon as the broed that is sealed now comes out the bees will be compelled to go to the sections for room, or swarm. My bees gathered pollen the next day

after I took them out of the cellar, from the soft maples, and ever since that day they have had honey and pollen to gather, whenever the weather was so they could fly—in fact, every variety of bloom seems to yield pollen and secrete nectar, and now white clover bloom is well under way. Wild grape bloom, also, is well started, so that at present the bees cannot possibly gather half of the honey there is in the field. I expect a good swarming season, and a good crop of honey this year, and am making all preparations necessary to assist the bees in procuring it. Crops are badly damaged by the drouth, though we had a fine rain yesterday morning, but I fear that it was not general.

G. N. BENHAM.

Red Wing, Minn., June 11, 1891.

Small Loss.

I wintered 45 colonies of bees on the summer stands, and up to date have hived 10 swarms this month. During the eight years I have been engaged in bee-keeping, I have lost but 4 colonies in Winter. F. A. KINNEAR.

Lindenville, Ohio, June 9, 1891.

Cleaning Wood-Zinc Honey-Boards.

What is the best method for cleaning the wood-zinc honey-boards? I have over 100 in use, and many of them have one-half or more of the perforations entirely filled with comb and propolis.

W. E. FORBES.

Plainwell, Mich., June 8, 1891.

[Full directions are given on page 798 of this issue.—ED.]

Swarms During Fruit-Bloom.

We had an extra good honey-flow this season from the fruit-bloom, and I had 11 swarms from 45 colonies during the time. The first one on May 15. By forming nuclei from the colonies that swarmed first, I have young queens laying. That is early for this locality, as swarming does not usually commence before this time. The clover season is close at hand, and I am ready for it. For a queen-cell protector, nothing that I have seen equals those sold by N. D. West, of Middleburgh, N.Y. No apiarist can afford to be without them. They are cheap, and will last for years. I put some in use to-day. C. RUSSELL.

Conesville, N. Y., June 8, 1891.

Honey from White Clover.

Last Fall I put 18 colonies of bees into the cellar, and they all came out sound this Spring, but I lost one colony after putting them out. The remaining 17 colonies are booming. One colony cast a swarm on May 21, a second colony swarmed on the 30th, and a third on June 3. We have a fine crop of white clover, and the bees are working on it industriously. They did well on the fruit bloom, and that, together with the sugar syrup which I fed to them previously, put them in good condition for the clover. J. B. DUNLAP.

Rochester, Ind.

New Crop Honey.

We have had some fine weather for bees to work, and they have done exceedingly well. At present they are working in the sections, and the swarming season is about over in this locality. I took about 25 pounds of honey from one colony yesterday, and the prospects are good for a fine crop. Some new crop honey is already in market. We are having more drizzly weather, which confines the bees to their hives.

JOHN D. A. FISHER.

Faith, N. C., June 6, 1891.

Working on the Clover.

Within half a mile of my apiary there are 72 acres of land seeded to alsike and red clover. Last night there was a heavy dew and the bees are perfectly crazy after honey. To-day is the first time I have noticed them working on the clover. This afternoon we had a fine shower of rain, and the prospects, I think, are very good.

JACOB MOORE.

Ionia, Mich., June 8, 1891.

Hiving Swarms with the Smoker.

To hive a swarm of bees quickly, use the smoker on them. They will enter the hive quicker from the smoke than from a rain storm. I find this an excellent plan, and can hive a swarm in two or three minutes by this method.

South Park, Ky. J. SHAFFER.

The Bee-Keepers' Directory, by Henry Alley, Wenham, Mass. It contains his method for rearing queens in full colonies, while a fertile queen has possession of the combs. Price by mail, 50 cents.

Wavelets of News.

Hiving Box.

When your bees swarm and cluster on the limb of a valuable tree, it is not at all necessary to saw off that limb. Do not do it, but get to work and make a hiving box. Make it of thin lumber, that it may be light, leave it open at top and bottom, and bore eight or ten holes in each side.

Make it of proper dimensions to hold a frame of brood, and fix it on a pole, place the box gently against the cluster, and soon they will leave the limb and adhere to the box, when you can let them down. Place the comb of brood in a hive, and shake the balance of bees in front of the hive.

In hiving a swarm always get the hive to its permanent location as soon as possible. This mistake is often made, and is quite a serious one to the bees, for they begin to mark their location at once on being hived, and many of them are lost when the hive is moved.—WALTER S. POUDER, in *Indiana Farmer*.

Bee-Keeping and Farming.

Apiculture is naturally a part of, and closely allied with, agriculture, inasmuch as the nectar gathered by the one is immediately derived from the same fields and forests that yield the abundant ingatherings of the other. Indeed, the bulk of the honey crop of this country (which is, in round numbers, about 100,000,000 pounds annually), comes from the bee-keeping which is in connection, more or less, with farming. —*Exchange*.

Putting Sections on Hives.

This is the busiest month in all the year for the bee-keeper, for if everything is not attended to promptly now, the expected honey crop will be greatly lessened or entirely lost.

As the first white clover blossoms begin to appear, cases of sections must be put on, and bees must be hived when they swarm. A great many other things that were overlooked will require attention now, and must not be longer delayed if we would succeed.

In putting cases of sections on hives, it is best not to be too fast, and put them on the strong colonies first. It is worse than useless to put them on hives where the bees are unable to cover more than half their combs.

Keep a close watch, and as fast as hives become crowded, put on the sections, and add more as fast as needed. There is not so much need of hurry in taking them off. Better leave them on until all the cells are capped, but should there be a sudden failure in the yield or at the end of the white honey crop, they should be removed without delay.—C. H. DIBBERN, in the *Plowman*.

Returning Swarms.

Last season I tried the plan (with 2 or 3 colonies of bees) of killing the queens and returning the swarms. I shall never adopt that plan as a good one to follow. When a colony gets at swarming heat they will keep it up under this method until the last queen-cells are hatched. The last queens hatched are generally more or less dwarfed from being reared in small cells, which would have been torn down, if the colony had been allowed to follow their natural instincts. By this practice the queens will be of little worth as prolific layers, and the colony never gets in good condition.

The best results are obtained by removing the old queen from the first swarm, and returning the swarm. When the next swarm issues hive it, and return it to the parent colony in the evening of the second day. Or, if it issues late in the day, leave it three nights before returning. The queen returned will usually make quick work of queens and cells alike. I have known this plan to fail, however.—*Stockman*.

Wax Scales on Bottom-Boards.

A swarm of bees always go with a lot of wax scales already protruding from the wax pockets. Not only this, but the sac of every bee is filled with honey. It seems as though the bees intended to carry all the material possible with which to furnish a new home. When there is no comb nor foundation in the hive, then wax scales "get ripe," if the expression is allowable, and drop to the bottom of the hives, before there is opportunity to use them. If the bees are hived upon combs, the scales are stuck upon the combs. Did you never notice how *white* the mouths of the cells of an old black comb appeared soon after bees had been hived upon it? This comes from the scales of wax that have been stuck on it, for a lack of somewhere else to put them.—*Review*.

AMERICAN BEE JOURNAL
ESTABLISHED IN 1861 — OLDEST BEE PAPER IN AMERICA

ADVERTISING RATES.

20 cents per line of Space, each insertion.

No Advertisement inserted for less than $1.00.

A line of this type will admit about eight words. ONE INCH will contain TWELVE lines.

Editorial Notices, 50 cents per line.
Special Notices, 30 cents per line.

Transient Advertisements must be paid for IN ADVANCE.

DISCOUNTS:

On **10** lines, or more, 4 times, 10%; 8 times, 15%; 13 times, 20%; 26 times, 30%; 52 times, 40%.
On **20** lines, or more, 4 times, 15%; 8 times, 20%; 13 times, 25%; 26 times, 40%; 52 times, 50%.
On **30** lines, or more, 4 times, 20%; 8 times, 25%; 13 times, 30%; 26 times, 50%; 52 times, 60%.
On larger Advertisements, discounts will be stated, upon application.

Advertisements intended for next week must reach this office by Saturday of this week.

ALFRED H. NEWMAN,
BUSINESS MANAGER.

Special Notices.

☞ Subscribers who do not receive their papers promptly, should notify us at once.

☞ Send us *one new* subscription, with $1.00, and we will present you with a nice Pocket Dictionary.

☞ The date on the wrapper-label of this paper indicates the end of the month to which you have paid. If that is past, please send us a dollar to pay for another year.

☞ Systematic work in the Apiary will pay. Use the Apiary Register. It costs:

For 50 colonies (120 pages) $1 00
" 100 colonies (220 pages) 1 25
" 200 colonies (420 pages) 1 50

☞ As there is another firm of "Newman & Son" in this city, our letters sometimes get mixed. Please write *American Bee Journal* on the corner of your envelopes to save confusion and delay.

CLUBBING LIST.

We Club the *American Bee Journal* for a year, with any of the following papers or books, at the prices quoted in the **LAST** column. The regular price of both is given in the first column. One year's subscription for the American Bee Journal must be sent with each order for another paper or book:

	Price of both.	*Club.*
The American Bee Journal.....	$1 00....	
and Gleanings in Bee-Culture....	2 00....	1 75
Bee-Keepers' Guide.....	1 50....	1 40
Bee-Keepers' Review.....	2 00....	1 75
The Apiculturist.....	1 75....	1 65
Canadian Bee Journal.....	1 75....	1 65
American Bee-Keeper.....	1 50....	1 40
The **7** above-named papers	6 00....	5 00
and Langstroth Revised (Dadant)	3 00....	2 75
Cook's Manual (1887 edition)	2 25....	2 00
Quinby's New Bee-Keeping.	2 50....	2 25
Doolittle on Queen-Rearing.	2 00....	1 75
Bees and Honey (Newman)..	2 00....	1 75
Binder for Am. Bee Journal.	1 60....	1 50
Dzierzon's Bee-Book (cloth).	3 00....	2 00
Root's A B C of Bee-Culture	2 25....	2 10
Farmer's Account Book.....	4 00....	2 20
Western World Guide	1 50....	1 30
Heddon's book, "Success,"..	1 50....	1 40
A Year Among the Bees	1 50....	1 35
Convention Hand-Book.....	1 50. ..	1 30
Weekly Inter-Ocean.....	2 00....	1 75
Toronto Globe (weekly).....	2 00....	1 70
History of National Society.	1 50....	1 25
American Poultry Journal..	2 25....	1 50
The Lever (Temperance)	2 00....	1 75
Orange Judd Farmer.....	2 00 ...	1 75
Farm, Field and Stockman..	2 00....	1 75
Prairie Farmer.....	2 00....	1 75
Illustrated Home Journal ..	1 50....	1 35
American Garden	2 50....	2 00
Rural New Yorker	2 50....	2 00
Nebraska Bee-Keeper.....	1 50....	1 35

Do not send to us for sample copies of any other papers. Send for such to the publishers of the papers you want.

If you have a desire to know how to have Queens fertilized in upper stories, while the old Queen is still laying below—how you may *safely introduce* any Queen, at any time of the year when bees can fly—all about the different races of bees—all about shipping Queens, queen-cages, candy for queen-cages, etc.—all about forming nuclei, multiplying or uniting bees, or weak colonies, etc.; or, in fact, everything about the queen-business which you may want to know, send for "Doolittle's Scientific Queen-Rearing;" a book of 170 pages, which is nicely bound in cloth, and is as interesting as a story. Price, $1.00. For sale at this office.

Supply Dealers should write to us for wholesale terms and cut for Hastings' Perfection Feeders.

Binders made especially for the BEE JOURNAL for 1891 are now ready for delivery, at 50 cents each, including postage. Be sure to use a Binder to keep your numbers of 1890 for reference. Binders for 1890 only cost 60 cents, and it will pay you to use them, if you do not get the volumes otherwise bound.

When talking about Bees to your friend or neighbor, you will oblige us by commending the BEE JOURNAL to him, and taking his subscription to send with your renewal. For this work we will present you with a copy of the Convention Hand-Book, by mail, postpaid. It sells at 50 cents.

Calvert's No. 1 Phenol, mentioned in Cheshire's Pamphlet on pages 16 and 17, as a cure for foul-brood, can be procured at this office at 25 cents per ounce, by EXPRESS.

The Convention Hand-Book is very convenient at Bee-Conventions. It contains a simple Manual of Parliamentary Law and Rules of Order for Local Bee-Conventions; Constitution and By-Laws for a Local Society; Programme for a Convention, with Subjects for Discussion. In addition to this, there are about 50 blank pages, to make notes upon, or to write out questions, as they may come to mind. They are nicely bound in cloth, and are of the right size for the pocket. We will present a copy for one new subscription to the BEE JOURNAL (with $1.00 to pay for the same), or 2 subscribers to the HOME JOURNAL may be sent instead of one for the BEE JOURNAL.

Red Labels are quite attractive for Pails which hold from 1 to 10 lbs. of honey. Price, $1.00 per hundred, with name and address printed. Sample free.

A Nice Pocket Dictionary will be given as a premium for only **one new** subscriber to this JOURNAL, with $1.00. It is a splendid little Dictionary—just right for the pocket. Price, **25 cents.**

Please send us the names of your neighbors who keep bees, and we will send them sample copies of the BEE JOURNAL. Then please call upon them and get them to subscribe with you.

It is a Prize in Itself.—I have just seen the ILLUSTRATED HOME JOURNAL for June, with the Rebus and offer of prizes for its solution. As the paper, at 50 cents a year, is a prize in itself for the amount, I take pleasure in enclosing it, and if my answer to the Rebus is correct, you can place me as a contestant for the prize. H. E. LAING.

Chicago, Ills.

☞ The Union or Family Scale has been received, and I am much pleased with it. W. H. KIMBALL.

Davenport, Iowa.

Supply Dealers desiring to sell our book, "Bees and Honey," should write for terms.

We send both the Home Journal and Bee Journal for one year, for $1.35.

Very Well Pleased. — The Sewing Machine and Scales are received in good order, and I am well pleased with them. They do good work. The sewing machine is ornamental as well as useful. The scales are very handy for family use.—G. RUFF, Burlington, Iowa.

Bee-Keeping for Profit, by Dr. G. L. Tinker, is a new 50-page pamphlet, which details fully the author's new system of bee-management in producing comb and extracted-honey, and the construction of the hive best adapted to it—his "Nonpareil." The book can be had at this office for 25c.

Convention Notices.

☞ The Rock River Bee-Keepers' Association will meet at Sterling, Ills., on Thursday, Aug. 6, 1891.
J. M. BURTCH, Sec., Morrison, Ills.

☞ The ninth annual meeting of the Susquehanna County, Bee-Keepers' Association will be held on Thursday, Sept. 3, at South Montrose, Pa.
H. M. SEELEY, Sec., Harford, Pa.